

## A Stone Artifact from Lower Mandailing, Sumatra

DONALD J. TUGBY and ELISE TUGBY

This note describes the form and discusses the possible functions and associations of a stone artifact found by the authors on the east bank of the deeply incised Gadis River in Lower Mandailing, North Sumatra in 1956 (map reference co-ordinates: 472843, Panjabungan sheet, 1:100,000 Series, Hind 1058, sheet XLI, 3rd edition).

Two cultural groups occupy this area at present—the Mandailingers, who are wet-rice cultivators, and the Ulu, who practise shifting agriculture. The latter comprise approximately eight per cent of the population. The Ulu village of Aek Banir is 300 metres to the east of the place where the specimen was found.

The artifact was partly buried in the surface of a narrow terrace of fine alluvial material, about three metres above the dry-season river level and about ten metres downstream from a small shelter used by Ulu fishermen when working the large fish-trap nearby.

*Form.* The specimen is rectangular, with rounded corners in cross-section, and is almost circular in plan (see Fig. 1). The maximum diameter in plan is 6.9 centimetres, the minimum 6.6 centimetres and the depth (thickness) is 4.8 centimetres. In what we assume to be the upper surface is a hollow 2.3 centimetres across and 2 millimetres deep. There is a much smaller and shallower hollow in the lower surface. The hollows and the sides of the specimen are pecked, the shoulders polished (see Pl. I). The weight is 314 grams.

The specimen is made from a holocrystalline igneous rock, probably a syenite which had undergone some weathering. There is no patina on the surface as a whole, but yellow iron staining is visible in some deeper pits which occur in a band of weakness exposed on the sides. There are also some heavy scores which cut across both polishing and pecking. These are lighter in colour, have no iron staining, and are not associated with the plane of weakness. There is no evidence that these scores, or any other features of the specimen, have been caused by water abrasion.

While the hollow in the upper surface is marked, the lower surface is only slightly concave and shows more polish. The pits in the polished area are relatively shallow on the lower surface. On the specimen as a whole, the pits are deeper where a feldspar crystal rather than quartz has been struck because the former is softer.

*Function.* The general form of the specimen is like that of a hammer-anvil stone made from a pebble, with flat sides produced by use. The 'polishing', however, does not represent the original surface of a pebble because, first, the shape of the polished area conforms with the shape of the hammerstone, not with that of a pebble; and, second, the polished area is fresher than the pecked area. There is

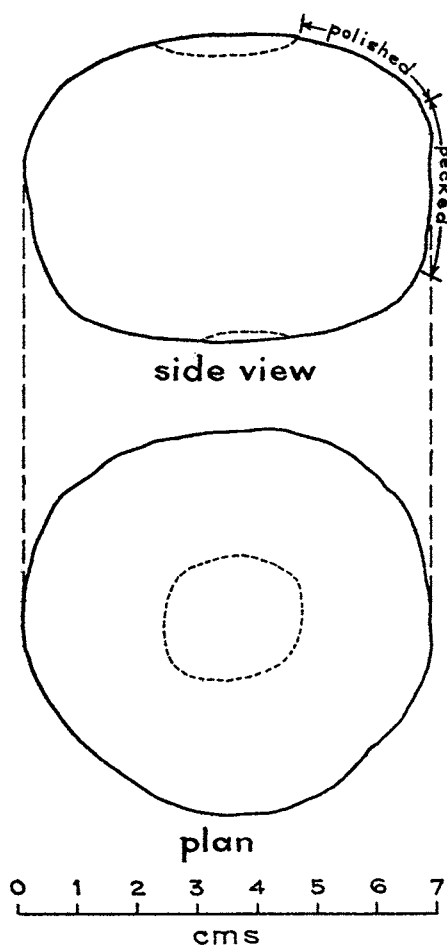


FIG. 1. Plan and side view of an artifact from Lower Mandailing, Sumatra.

no patina. The polishing must, therefore, serve as decoration or indicate that the specimen had a secondary function.

The fact that the specimen was found near the fish-trap would suggest that it was used in the preparation of fish or as a sinker; but artifacts of this kind were never observed in use in these ways (large fishing-nets are not used by either Mandailingers or Ulu). A specimen of this kind was never observed in Ulu and Mandailing workshops.

In the kitchens of contemporary Mandailingers and Ulu, crushing and grinding are processes used every day in the preparation of spices. The materials to be treated are placed on a flat or slightly concave slab, usually of granite, and broken up and ground, using a small stone held in the hand. A sliding and rocking motion is used, sometimes with one hand cupping the other on the stone. The partly crushed material is brought back to the centre of the slab by scraping with the edge of the stone. The crushing-grinding stone is also sometimes used for crushing nuts,

which are given a hard blow with the stone. As a result of its multiple functions, the crushing-grinding stone usually has a globular form and almost the whole surface appears half ground.

Thus, in the contemporary cultures in Mandailing, artifacts similar in size and weight to the specimen have a dual function as grinding and crushing stones, but mainly for grinding. If it is assumed that the specimen had at some time a similar function, the polished area can be accounted for.

The gashes and scores which cross both pitting and polishing have still to be explained. They suggest that the specimen, after polishing, was used again as a hammer. The depth and shape of the scores suggest contact with a metal object. Possibly the origin of the scores on the specimen can be that it was picked up recently and re-used to hit the knife, which served to split the bamboo in making the fish trap.

*Associations.* If it is accepted that the specimen functioned as a crushing-grinding stone, as a hammer-anvil, and as a hammer, the question is in what order these functions were exercised. Only the problem of the order of the first two functions need be considered, because the form of the scores suggests that the specimen was last used as a crude hammer.

Now if pecking precedes polishing on the same surface of a specimen, the depth of pits on that surface will be relatively slight where polishing takes place. On the other hand, if polishing precedes pecking, the pits will have the same depth everywhere (see Fig. 2). When this test is applied to the specimen, it is clear that pecking precedes polishing. This could indicate either that the specimen was first used as an ordinary hammer stone and anvil, and then for a short period as a grinding stone or that it had alternating use as a hammer-anvil and crushing-grinding stone.



FIG. 2. Relation between pecking and polishing.

Although the specimen was well-embedded in the terrace it is not certain that it was *in situ*. It could have originated in Aek Banir, the Ulu village below which it was found. The Ulu in this area are reported as living in tree houses in the first part of the nineteenth century (Willer and Netscher 1855). The village has probably been in existence since Mandailingers first influenced the Ulu about 70 years ago. Aek Banir is shown on a map of 1911 (Kreemer 1911: App. II). But the site is not far from the old road along which Imam Bondjol's troops travelled from Menangkabau to Padang Lawas in about 1820, and the specimen might have come from some distance.



Stone artifact from Lower Mandailing, Sumatra.  
Note polished shoulders, pecked sides, hollow in upper surface  
and gash on the side.



Scale in centimetres.

In contemporary Mandailing and Ulu kitchens, artifacts of a similar size are used for crushing and grinding; and larger stones from the river bed are used as cooking stones on the earthen hearth. Mandailing potters hold a rounded stone inside the pot while the wall is patted into shape from the outside. Artifacts of a similar material to the specimen, but of larger size, are used as hammers in the Mandailing smithy. Ulu and Mandailing men sharpen their knives on stone. In Central Sumatra in 1877, mortars made from 'riverstone' (probably a volcanic rock) and small magic stones were in use (Van Hasselt 1811: 13, 35, pls. 31, 82). However, the specimen here described cannot be matched with artifacts that are part of contemporary or historical Mandailing or Ulu culture.

The specimen can be matched, however, with a specialized type of artifact used by the Australian aborigines in historical times and known as the *kulki* percussion stone or percussion-muller (McCarthy 1946: 3, 59, 66, figs. 304-5). The *kulki* percussion-muller is 'cylindrical in shape, with flattened sides and rounded edges where the sides join the upper and lower surfaces. . . . The upper and lower surfaces frequently bear an anvil-pit in the middle and evidence of use as a muller' (*ibid.* 59). The *kulki* percussion-muller is widely distributed in inland Australia and ranges in diameter from 5 to 15 centimetres. In a sample of thirty-eight *kulki* percussion-mullers from eastern Australia (mainly New South Wales) examined in the Australian Museum, Sydney, pits or hollows formed by percussion were found on both surfaces in twenty-four specimens and on one surface in fourteen specimens; polishing occurred on both surfaces in twelve specimens and on one surface in nine specimens. The function of the percussion-muller which results in polishing of the surfaces therefore appears to be secondary. The mean diameter of the specimens in the sample was 7.2 centimetres. The *kulki* percussion-muller was used as a hammer for shaping other artifacts, as an anvil (the pits or hollows on the surfaces were formed when crushing hard nuts—McCarthy, personal communication), as a concussion stone (two specimens were struck together under water to drive fish into nets), and as an occasional upper grinding stone or muller. *Kulki* percussion-mullers were carried about and used by both aboriginal men and women in northern Australia (Tindale, personal communication). The form of the specimen described here is therefore very similar to that of the Australian *kulki* percussion-muller as a type, and we may assume that its functions were similar. Specimens with similar functions have been described as occurring in Hand-Axe Culture remains in shell heaps on the northern part of the east coast of Sumatra (Heine-Geldern 1935: 306); but recent work on lower palæolithic artifacts from Indonesia has not revealed specimens of the same kind (Soejono 1961).

*Summary and Conclusion.* The specimen is multi-functional; it was probably used as a hammer, as an anvil for crushing nuts, and as a crushing and grinding stone. It cannot be matched with known artifacts from contemporary or historical Mandailing or Ulu culture and may be regarded as prehistoric in Sumatra. It is similar in form to the *kulki* percussion-muller which was used by Australian aborigines in historical times. A similar specimen, to the authors' knowledge, has not been reported from Lower or Upper Mandailing. The specimen is therefore intriguing

because it suggests the presence of a suite of artifacts whose other members have yet to be found.

#### ACKNOWLEDGEMENTS

The authors are indebted to Mr Frederick D. McCarthy, Curator of Anthropology, Australian Museum, Sydney, who kindly facilitated access to the collection of *kulki* hammer stones in his charge.

#### REFERENCES

HEINE-GELDERN, ROBERT

- 1935 The archæology and art of Sumatra, in *Sumatra Its History and People*, Edwin M. Loeb, (ed.) Vienna, Institut für Völkerkunde.

KREEMER, J.

- 1911 De Loeboes in Mandailing, *Bijdragen tot de Taal-, Land-, en Volkenkunde van Ned.-Indie*, 66: 304-335.

MCCARTHY, FREDERICK D.

- 1946 The stone implements of Australia, *Memoirs of the Australian Museum*, 9.

SOEJONO, R.

- 1961 Preliminary notes on new finds of lower-Palæolithic implements from Indonesia, *AP*, 5: 217-232, 9 figs, 5 pls.

VAN HASSELT, A. L.

- 1881 *Ethnographische Atlas van Midden-Sumatra met verklarenden tekst*, Leiden, E. J. Brill.

WILLER, T. J. and E. NETSCHER

- 1885 Iets over de Loeboes en Oeloes in de binnenlanden van Sumatra naar mededeelingen, *Tijdschrift voor Indische Taal-, Land-, en Volkenkunde*, 4: 56-70.